

II. CLAIM LISTING

This listing of claims replaces all prior versions, and listings, of claims of the application.

1. (Currently Amended) A system for reducing a size of an image, comprising:

a system for rotating the image in a first direction using a rotation algorithm to generate an intermediate reduced image;

a system for rotating the intermediate reduced image in a direction opposite the first direction using the rotation algorithm to generate a final reduced image; and

wherein the rotation algorithm uses weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values, and wherein the rotation algorithm calculates each new pixel value using the formula:

$$V_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3 - V4) + K_v (V2 - V4) + V4.$$

wherein, V_o comprises a rotated data point; $V1$, $V2$, $V3$ and $V4$ comprise neighboring data points in the image prior to rotation; and K_h and K_v comprise constant values calculated as a function of pixel locations of the rotated image.

2. (Canceled)

3. (Currently Amended) The system of claim 2 1, wherein K_h and K_v are stored in a table.

4. (Original) The system of claim 1, wherein an amount of size reduction is proportional to an amount of rotation implemented by the rotation algorithm.

5. (Original) The system of claim 1, further comprising an enhancement system to boost a dynamic range of the image after the second reduction.

6. (Original) The system of claim 1, wherein the final reduced image comprises a total number of pixels that is a multiple of eight.

7. (Currently Amended) A program product stored on a recordable medium for reducing a size of an original image, comprising:

means for rotating the original image in a first direction to generate an intermediate reduced image;

means for rotating the reduced image in a direction opposite the first direction to generate a final reduced image; and

wherein the means for rotating the original and intermediate reduced image use weighted sums of neighboring pixels in the image prior to rotation to calculate new pixel values, and wherein the means for rotating the original and reduced image uses the formula:

$$V_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3 - V4) + K_v (V2 - V4) + V4,$$

wherein, V_o comprises a new pixel; $V1$, $V2$, $V3$ and $V4$ comprise neighboring pixels in the image prior to rotation; and K_h and K_v comprise constant values calculated as a function of a pixel locations of the rotated image.

8. (Canceled)

9. (Original) The program product of claim 7, wherein K_h and K_v are stored in a table

10. (Original) The program product of claim 7, wherein an amount of size reduction is proportional to an amount of rotation.

11. (Original) The program product of claim 7, further comprising enhancement means to boost a dynamic range of the final reduced image.

12. (Currently Amended) A method of reducing a size of an image, comprising:

providing an original image having W1 pixels in each row;

generating an intermediate reduced image having W2 pixels in each row, wherein W2 is less than W1, and wherein for each pixel 1 to W2 in each row, pixel values are calculated based on weighted sums of neighboring pixels in the original image; and

generating a further reduced image having W3 pixels in each row, wherein W3 is less than W2, and wherein for each pixel 1 to W3 in each row, pixel values are calculated based on weighted sums of neighboring pixels in the intermediate reduced image;

enhancing the further reduced image to boost a dynamic range of the further reduced image; and

wherein the step of calculating pixel values based on weighted sums of neighboring pixels in the original image utilizes the formula:

$$W2_u = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3 - V4) + K_v (V2 - V4) + V4,$$

wherein, W2_u comprises a calculated pixel; V1, V2, V3 and V4 comprise neighboring pixels in the original image; and K_h and K_v comprise constant values calculated as a function of the number of pixels W2.

13. (Canceled)

14. (Canceled)

15. (Currently Amended) The method of claim 12-14, wherein the constant values K_h and K_v are further calculated as a function of the location of W2_u in a row of W2 pixels ~~W3~~.

16. (Original) The method of claim 12, wherein the reduced number of pixels W2 is a multiple of eight.

17. (Currently Amended) A system for reducing a size of an original image, wherein the original image has a predetermined number of pixels W1 in a row, the system comprising:

a system for generating an intermediate reduced image having a reduced number of pixels W2 in the row, wherein W2 is less than W1, and wherein for each pixel 1 to W2 in the row, pixel values are calculated based on weighted sums of neighboring pixels in the original image; and

a system for generating a further reduced image having a reduced number of pixels W3 in the row, wherein W3 is less than W2, and wherein for each pixel 1 to W3 in the row, pixel values are calculated based on weighted sums of neighboring pixels in the intermediate reduced image;

wherein the pixel values are calculated with the formula:

$$W2_o = K_h * K_v (V1 + V4 - V2 - V3) + K_h (V3 - V4) + K_v (V2 - V4) + V4,$$

wherein, W2_o comprises a calculated pixel; V1, V2, V3 and V4 comprise neighboring pixels in the original image; and K_h and K_v comprise constant values calculated as a function of the number of pixels W1.

18. (Original) The system of claim 17, further comprising:

an enhancement system to boost a dynamic range of the further reduced image.

19. (Canceled)

20. (Currently Amended) The system of claim 17-19, wherein the constant values K_h and K_v are further calculated as a function of the location of W2_o in the row of W2 pixels.

21. (Original) The system of claim 17, wherein the reduced number of pixels W3 is a multiple of eight.